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DEPARTMENT OF NATURAL RESOURCES
RICHARD A. LEOPOLD, DIRECTOR

To: Owners of Underground Storage Tanks and Other Interested Parties

From: Elaine Douskey, Supervisor, Underground Storage Tank Section

Date: February 19, 2008

Re: Amendments to Chapter 135 Technical Standards and Corrective Action Requirements

The Department of Natural Resources (DNR) would like to update you on proposed changes to Chapter 135 Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks that affect how your site could be evaluated. We have scheduled three public hearings to discuss these rule changes:

March 4, 2008: 1:00-3:00 PM **Denison**, Community Meeting Rm., City Hall Clerk's office, 111 N. Main St
March 5, 2008: 1:00-3:00 PM **Iowa City**, Meeting Room B, Iowa City Public Library, 123 South Linn St
March 6, 2008: 1:00-3:00 PM **Des Moines**, 5th Floor Conference Rooms, Wallace Bldg., 502 East 9th St

You may obtain a copy of the proposed rules by contacting the DNR at 1-515-281-8997 or on the DNR website at <http://www.iowadnr.gov/land/ust/ustproprulesindex.html>.

Below we provide some information and history on how we arrived at the proposed changes:

Chapter 135 specifies a Risk-Based Corrective Action (RBCA) process is to be used for evaluating potential risks from petroleum releases. The concept of RBCA is to base corrective action/cleanup efforts on site-specific conditions and receptors to determine level of risk at a site (i.e., contamination near a drinking water well would pose a higher risk than if there were no drinking water wells near the contamination). The RBCA approach also is intended to target limited resources to sites which pose a higher risk. As such, if a petroleum release is determined not to pose a risk, contamination may be left in place with no additional action required.

A tiered RBCA approach has been used in Iowa since 1995. There are three levels of assessment: Tier 1, Tier 2, and Tier 3. At each tier, progressively more information is collected about the site. A software model is used at Tier 2 to predict the maximum extent of horizontal movement of contamination. The Tier 2 assessment uses these modeled plumes to identify risk to humans or the environment (i.e., drinking and non-drinking water wells, plastic water lines, sewers, basements, and surface water bodies, collectively termed, 'receptors'). Receptors identified within the Tier 2 modeled plumes are considered to be at some risk. However, after ten years of using the Tier 2 model, there was a perception the length of these predicted plumes may significantly over-estimate the extent of actual groundwater contaminant plumes.

A software investigation committee (Committee) was formed to evaluate this model and consider adjusting it based on information gained from ten years of use. The Committee was comprised of representatives from the DNR, Petroleum Marketers Management Insurance Company, Iowa UST Fund, Casey's, Barker Lemar Engineering, Petroleum Marketers and Conveniences Stores of Iowa, Environmental Professionals of Iowa, and Dr. LaDon Jones of Iowa State University. Some of the goals of the investigation included the following:

- Comparison of actual groundwater plume data from Tier 2 sites to Tier 2 groundwater modeling results. This comparison was to help determine how the Tier 2 groundwater model has been performing in practice.
- If the comparison showed the Tier 2 groundwater model significantly over-estimates actual groundwater plumes, to look at changes to the Tier 2 groundwater model that would produce modeled plumes that are closer to actual results, while still maintaining a factor of safety.

The Committee concluded the model should be adjusted to provide a more realistic predicted plume size. They used plume data from over 100 sites to make decisions on adjustments and develop a new Tier 2 model. The new model generally produces smaller modeled plumes which are much closer to the actual plume size. For example, with the old model, the average projected benzene plume was 8.6 times larger than the average actual plume. With the new model, the average projected benzene plume is 2.6 times larger. As a result of the smaller modeled plumes, fewer receptors may be identified as being at risk by the Tier 2 assessment. The Committee summarized their activities and conclusions and made a recommendation to the DNR to implement the use of the new Tier 2 model.

While supportive of the recalibration of the Tier 2 model, the DNR has some concerns with its use for assessing sites near pumping wells. In some cases where only the new model is used, an at-risk pumping well may not be identified because of the smaller projected plumes. Pumping wells can, under certain conditions, affect plume movement and draw in contaminants over time even from areas that exceed the projected plume of the old model. The movement can occur vertically and not just laterally. The old model, while over-predictive in some cases, provided a margin of safety around pumping wells.

Discussions with stakeholders were held to develop a screening process for identifying those limited cases where the new model with the smaller simulated plume is not appropriate for evaluating public water supply wells. Existing information available from other entities (e.g., water supply operators, DNR's Iowa Geological Survey, and Water Supply Section) will be considered during the screening of a vulnerable public water supply well.

What are the potential impacts to owners or operators? At this time, it is difficult to quantify the potential costs associated with using the new model. Owners or operators may or may not incur some additional expense. Except for certain public water supply wells, other types of receptors (e.g., non-drinking water wells, private wells, plastic water lines), which would otherwise require evaluation and potential cleanup, may no longer require further action (depending on their distance from the site). The proposed rule changes seek to continue to use the old model to assess public water supply wells when the screening process determines the well is vulnerable. In this sense, there should be no change from current rules. In cases where the screening process determines a public water supply well is not vulnerable, the new model may be used, which could result in cost savings because it would eliminate well receptors that otherwise would require assessment and potential cleanup under the old model.

The potential added costs or saving to owners or operators could be affected by the following:

- If the site has already been classified, the use of the new software model is optional.
- The new model could be used with existing data/information collected on the site; a revised Tier 2 evaluation would be submitted (i.e., not started over completely from scratch).
- Whether the new or old software model is used, it is still a Tier 2 evaluation, and the costs should be comparable between old vs. new.
- There may be additional costs for the few new sites located near a vulnerable public water supply well which may otherwise have been classified no action required with a Tier 1, but which now will be required to complete a Tier 2.